

## What Happens on Mars

By Abbe Moreux, President of the Observatory of Bourges

When considering conditions on our neighbor planet Mars, you must always remember that the years on Mars are almost twice as long as ours, consisting of 687 days. Each side is therefore exposed to the blessed rays of the sun for more than eleven months a year, which causes every trace of snow even at the poles to disappear completely.

A very strange climate indeed, stranger than any one is apt to think—and the reason is not far to seek. If you look at your barometer, you will notice that here on earth the average atmospheric pressure at sea level, as measured by the weight of a column of mercury counterbalancing the weight of the air, is about seventy-five centimetres.

As you get up into higher altitudes, the pressure rapidly diminishes. At the top of the Eiffel Tower, you will already find a decrease of about three centimetres. On the summit of a mountain of 1,200 metres the barometer barely registers sixty-three centimetres, at 2,000 metres, the pressure is about sixty. At a height of five kilometres the barometer registers thirty-eight, and at one of eleven kilometres only nineteen centimetres. This is the highest altitude ever reached by any aeronaut.

In these regions, the pressure of the air is so small that our organism, used to live at the bottom of the atmospheric ocean, where it bears a total weight of 16,000 kilograms, suffers great pain. Breathing becomes difficult, the blood beats against the skin and tries to burst through, producing more or less serious hemorrhages, the ears burst, sight is lost, and fainting spells are frequent.

Our trial balloons, invented to test the atmosphere, have rarely risen to a height of more than thirty kilometres, and at this distance from the earth the air is so rarified that it can hardly be called an atmosphere.

On the planet of Mars, the usual atmospheric pressure corresponds to the one we find at an altitude of about seventeen kilometres above sea level. No human being would be able to breathe there, no mammal, no bird, no insect, no organism as we know them would be able to withstand such low pressure. The lightness of the atmosphere on Mars has many great effects. If we place a glass filled with water under the bell of an air pump and gradually diminish the pressure, the water will evaporate. It can no longer exist in liquid form.

And this is what happens on Mars. During the day the atmosphere fills with humidity, especially at the poles, where the rays of the sun gradually melt the rather thin layer of snow. This humidity slowly spreads through

the parts adjoining, thanks to the regular trade winds that are always blowing.

But when the sun sets, it turns cold, the heat absorbed during the day rapidly dissipates by evaporation and the thermometer drops to a hundred degrees below zero in many places. The water is then deposited on the surface of the planet in the form of hoarfrost. Towards morning heavy fogs arise which are scattered under the influence of the sun, whose rays are stopped by nothing. In the upper strata of the air, light clouds consisting of sharp ice needles are founded under the breath of the winds.

Like our clouds of similar kind, they remain at high altitudes, and, seen at great distance through a powerful telescope, they often appear as white spots of the planetary disk looking like solar protuberances. It is these which certain astronomers have taken to be fire signals made to us by the inhabitants of Mars.

The changes of color, according to the season, have explained certain facts to us: the lower plains of the planet and its large valleys are covered with a vegetation that is probably quite stunted as compared to ours, and which is made possible by the humidity of the atmosphere. It is in these places that the vapor usually gathers. At the bottom and on the edges of these valleys the heat collects, it is sunnier, and during the night and often during the day white fogs mark the location of the famous canals.

In the course of the years the outlines of the seas change with extraordinary facility. I have been able to observe myself that since 1909 the shores of the Great Bay have receded to Lake Moeris, and approaches, the cold will penetrate everywhere the humidity will disappear, and with it the last traces of vegetation, or what kind may a vegetation be that develops so rapidly and profusely in forest or marshes? Are these immense plains possibly inhabited by a strange animal world? These are questions which our present knowledge is unable to answer.

All that we are able to say now is that the planet of Mars is of more recent formation than the earth, its evolution has been more rapid, because it is smaller.

Mars is an older world than ours. Our neighbor in space shows a state that if the planet of Mars is of more earth and the moon. The phenomena we are now witnessing from far away are only the last manifestations of an animation about to disappear. Slowly, very slowly time is performing its work. Life is being extinguished by the cold, which puts worlds to sleep and gently carries them into the arms of death.

## The Way to Grow Old Gracefully and Healthily

By George Dufresne

To grow old without suffering; to grow old with all your intelligence intact, your memory unimpaired, your eyes strong; to grow old without rheumatism or gout; to grow old with young eyes and ears; to grow old, while remaining young, is a difficult problem, which interests all the world, and on which I have asked a number of France's most distinguished physicians to give their opinion, for the benefit of my American readers. All of these are eminently qualified to speak on this subject, the youngest of them being sixty-nine and the oldest ninety-two years.

Doctor Duguet, member of the Supreme Board of Health, member of the Academy of Medicine, alert and youthful, with short, curly white hair, and with laughing eyes and rosy complexion, has just entered his seventy-fourth year.

"The secret of my youthfulness," he said, "is very simple. In the morning I drink a glass of cold water, with a lump of sugar and a slice of bread. I take a hearty lunch at 1 o'clock, eggs, a mutton chop, potatoes, fruit, cheese and a cup of coffee. Nothing between the meals. About half-past 7 in the evening I eat a light dinner. Every day I walk at least three miles. When I go hunting, as I do quite often, I walk ten or twelve miles a day easily. "With me, I consider very important is the fact that I do not smoke. I have never smoked. Smoking makes you old without any doubt. I do not drink, but a little brandy and water with my meals, and I sleep seven hours regularly."

"You ask me," said Professor Hallopeau, "how I have succeeded in reaching my sixty-ninth year without showing any signs of age or any evidence of failing intelligence and clearness of brain, which might encourage those of my friends who are coveting my seat in the academy."

"Heredity," he said, "is a disease of the brain. I endeavor to avoid every strain on this organ, while at the same time working hard on scientific and literary works. I have succeeded in doing considerable work without fatigue by taking two siestas a day—one of thirty minutes after lunch, the other from half-past 9 in the evening until 11 in the morning. I thus avoid the painful struggle which in the majority of brain workers takes place after meals between the stomach and the brain. At the same time my psychic centre rests three times a day instead of, as with most, being in activity sixteen hours in one stretch. "Convinced, besides, that a man has the care of his arteries to consider, I try to avoid all that might disturb the nutrition of these, especially tea, coffee and liquor."

"Outside of this I do nothing particular to stay young, except that I walk two or three hours a day."

Ninety-two years of age, M. Hippolyte Herard, who has just been elected to the Prevention of Consumption in Paris, and one of the members of the Academy of Medicine, said: "There is an old saying that, when you have successfully passed your sixtieth year, there is nothing to prevent you getting to a hundred. This contains considerable truth. "I do not know if I shall reach that age, for my legs are beginning to give out, but I can assure you that there is no simpler or better way to grow old gracefully than a life without excesses of any kind."

Doctor Beni Barde, the famous hydrotherapist, who in

introduced hydrotherapy in France, is seventy-seven years old. Seated at work at a big desk, under a mighty, shady chestnut tree at Auteuil, Dr. Beni Barde said:

"For more than forty years I have been in the habit of drinking a big glass of cold water every morning, after having had a cup of café-au-lait, and to this I attribute the fact that my digestion is still that of a young man."

"I take a long walk every morning. Lunch between half-past 12 and 1—a very plain lunch, eggs, some meat, vegetables and fruit. No coffee or tea. No tobacco. In the afternoon a walk and intellectual work, which is like gymnastics for the brain. It is just as necessary as physical exercise. A light dinner at 6 o'clock. To bed about 10. Sleep for seven or eight hours. "These are the hygienic rules I follow, and, as you see, I am in the very best of health. I spend about six months in the country every year, and then I drink plenty of buttermilk and sour milk. The action of this upon the digestion is most beneficial."

M. Calletet, member of the Academy of Science. This learned physician, who has just given to the world an immensely interesting work on the breeding of the plants, is seventy-nine years old. "Use everything and abuse nothing," said M. Calletet, president of the Aero Club, "that is my advice. The secret of my youth? I might say, like Marshal Vaillant, when asked how he felt: 'I feel very well since I have left some of my tools in the barn.' "Rise between 7 and 8, lunch and dinner at regular hours, six or seven hours' sleep, a walk—this is my daily program. I wake up at about 1 or 2 in the morning, and at this hour, when everything is silent, ideas concerning my work often come to me, and I scribble them down on a scrap of paper. Between 3 and 4 I fall asleep again and sleep until it is time to get up."

Professor Fournier. Like M. Calletet, Professor Alfred Fournier, of the Academy of Medicine, is seventy-nine years old. "Metchnikov, whom we have known for years, and of whom we are very fond, has made my wife and myself live up to this rule during the last two or three years," he said, "and this has done us a world of good. We eat no meat in the evening and drink sour milk very often. No tobacco. That is about all, so you see it is not a very difficult prescription to follow to reach high old age."

## New York a Habit

By ADA PATTERSON.

On the rickety backdoor step of many an humble home in many a village of this country sits the young person, the dreamer of New York. I know the young person's fancy. Who doesn't who has not seen New York as a dot upon the map instead of the hazy blot of a blanket that covers Manhattan island.

On an, to him, epoch-making day, the young person crosses North River. He is romantic and addicted to visions. He takes one of the ferry boats. If he comes by night he sees a great, impenetrable wall of blackness pierced by many stars set into the night as if windows are built into the facade of a towering building. If he comes by day, the vision is far less fairylike. He sees then no beauty in New York, only a business that oppresses him. If he is faithful, he sees its varied outlines as giant jaws, waiting to swallow him, and the huge buildings as irregular teeth, ready for their easy task of crushing him.

When he makes his bewildered way about the little island, he has been traded for a cow, rearing its masonry into the high blue, he is stunned by the wailing noise, the scream of the whistles of the speeding elevated trains, the shrieks of the sirens from the river and the bay surrounding it, the throbbing of continuous sound like the pulse of a mammoth heart. He is frightened, stout-hearted though he be, and he wonders what prophecy this chorus of strange sounds holds for him.

According to his mood, he sees it all a pleasure house in a laughing city, or something beneath the facts he sees about him, so close, but so unseeing or meaning. He has a sudden and poignant sense of what Pound calls "the lurking agony in great cities." He sees that the city has many zones, the center zone, whose heart is the crowded East Side the zone of middle

class respectability, which includes Lexington and portions of Madison Avenue the crude, but ambitious portion, which is Harlem; the leisure zone, which is Fifth Avenue, and its neighbor, the amusement zone, which is far different, because it makes amusement a business. It is the street of theatres, and it is a proverb that no one ever sees a sad face on Broadway. Its code resembles that of the Casino at Monte Carlo. It is bad form to be a spoiled sport in the great gaming house by killing oneself there, and it is a crime to look other than cheerful on the great amusement thoroughfare. If a man must show his heartbreak or lifebreak, the code demands that he step into the street. He sees that the farthest point of the island where it begins as the sharp end of a wedge, is the Battery, the gate of the city, where Europeans pour in after every international chat at Ellis Island. He sees the extreme West as one of the battered sides, fringed, as is the East, side with poverty, all save Riverside and the few who hold their heads high, a perous fraction of the city's wealth. In a short time he catalogues the New York face. Quickly he learns to recognize it, for it is the most impressive face in the country. Vivacity he sees in the faces from the West, smiles on the faces from the South, but the marble mask is the model of New York physiognomy.

He becomes used to the indifference of New Yorkers. He learns that the metropolitan motto is "Nobody cares for anybody else." He learns the haughty ignorance of geography. Every place not on the island of Manhattan is sufficiently "out of town" to the resident of Gotham.

Soon, unless homesickness and the fear which the great city inspires send him home, he joins the tired-faced crowds who bolt their meals and hurry to their tasks in the morning, re-

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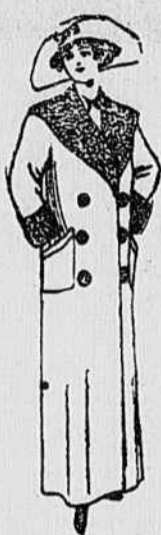
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The Watauga County Court House, at Boone, N. C. The altitude is 3,332 feet, and is the highest east of the Rocky Mountains. This building was erected in 1904, at a cost of \$10,000, and is the third courthouse built since the formation of the county.

## Appomattox Social News

[Special to The Times-Dispatch.] Appomattox, Va., October 28.—Patrons' Day was observed by all pupils of the Appomattox Agricultural School Friday afternoon. Congressman H. D. Flood, who has been in New Mexico for the past several weeks upon the invitation of the State Committee for the State convention, has just returned. C. C. Anderson, of Pittsburg, is here on a visit. B. G. Anderson spent yesterday in Farmville. Miss Edyth Atwood, who has been visiting in Mississippi, has returned home after spending several days with her sister, Miss Jacqueline, who is at Hollins.

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